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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,364	07/09/2002	Alan Edward Richardson	37-02	7785
23713	7590	07/29/2004	EXAMINER	
GREENLEE WINNER AND SULLIVAN P C 5370 MANHATTAN CIRCLE SUITE 201 BOULDER, CO 80303			BAUM, STUART F	
			ART UNIT	PAPER NUMBER
			1638	

DATE MAILED: 07/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/089,364

Applicant(s)

RICHARDSON ET AL.

Examiner

Stuart F. Baum

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-49 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-10, and 26-33, drawn to a method of enhancing the phosphorous nutrition of a plant comprising ectopically expressing in the root of a plant an isolated nucleic acid molecule encoding a phytase polypeptide wherein the phytase is secreted from the root, and transformed plant and progeny that ectopically expresses a secretable phytase polypeptide from the roots.

If Applicants elect Group I, Applicants are also to elect one amino acid sequence from the list below:

SEQ ID NO:2; SEQ ID NO:4; SEQ ID NO:10; SEQ ID NO:12

Group II, claim(s) 11-33, drawn to a method comprising ectopically expressing an isolated nucleic acid molecule in a plant, encoding a phytase polypeptide that is secreted from plant roots and modifying the chemistry of the soil around the root or other growth medium around the root using an organic acid, and transformed plant and progeny.

If Applicants elect Group II, Applicants are also to elect one DNA sequence and a corresponding amino acid sequence from the list below:

SEQ ID NO:9; SEQ ID NO:11;
SEQ ID NO:2; SEQ ID NO:4; SEQ ID NO:10; SEQ ID NO:12

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Group III, claim(s) 34-43, drawn to a process comprising producing a plant that ecopically expresses phytase in the roots of the plant wherein said phytase is secreted into the growth medium and said growth medium comprises phytate and a suitable carrier for application to plants and/or the growth medium.

If Applicants elect Group II, Applicants are also to elect one DNA sequence and a corresponding amino acid sequence from the list below:

**SEQ ID NO:1; SEQ ID NO:3;
SEQ ID NO:2; SEQ ID NO:4;**

Group IV, claim(s) 44-49, drawn to an isolated nucleic acid molecule encoding a mature phytase polypeptide and gene construct comprising said nucleic acid molecule.

If Applicants elect Group II, Applicants are also to elect one DNA sequence and a corresponding amino acid sequence from the list below:

**SEQ ID NO:1; SEQ ID NO:9;
SEQ ID NO:2; SEQ ID NO:10;**

2. The claims are not linked by a single special technical feature because the invention of Group I does not constitute an advance over the prior art. Group I is taught Austin-Phillips et al (May 1999, U.S. Patent Number 5,900,525) who teach a plant transformed with a nucleic acid sequence encoding a phytase polypeptide, in which the nucleic acid sequence is operably linked to the 35S CaMV promoter and wherein the nucleic acid sequence is operably linked to a nucleic acid sequence encoding a signal peptide for targeting the phytase enzyme to the apoplast (column 7, lines 8-44). It would be an inherent process for the targeted phytase enzyme to be secreted from the root, once the enzyme has been targeted to the apoplast. Hence, there is no special technical feature that links the method for enhancing the phosphorous nutrition of a plant comprising transforming said plant with a nucleic acid sequence encoding a phytase enzyme

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wherein the phytase enzyme is secreted from the root of said plant of Group I, with the method comprising ectopically expressing a phytase in the root of a plant and modifying the chemistry of the soil around the roots of a plant using an organic acid of Group II, with the process comprising producing a plant that ectopically expresses phytase in the roots of the plant wherein said phytase is secreted into the growth medium and said growth medium comprises phytate and a suitable carrier for application to plants and/or the growth medium of Group III or with the nucleic acid molecule of Group IV.

3. Furthermore, the method of enhancing phosphorous nutrition of Group I is a distinct method from the method of using an organic acid of Group II, which is distinct from the process comprising a suitable carrier of Group III and which is distinct from the nucleic acid molecule of Group IV in starting materials, method steps and end products.

4. Because these inventions are distinct for the reasons given above, have acquired a separate status in the art as shown by the literature and sequence searches required for each of the Groups are not required for another of the Groups, restriction for examination purposes as indicated is proper.

5. Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the

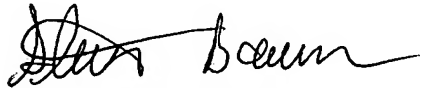
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application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stuart F. Baum whose telephone number is 571-272-0792. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on 571-272-0804. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-1600.

A handwritten signature in black ink, appearing to read 'Stuart F. Baum', with a stylized, cursive script.

Stuart F. Baum Ph.D.

Patent Examiner

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July 26, 2004